

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY CONSTRUCTION PERMIT

Permit No. 0023-AC010
Application No. X84

Issue Date: August 30, 2000

The Department of Environmental Conservation, under the authority of AS 46.14 and 18 AAC 50, issues a construction permit to the Permittee, **Kenai Pipeline Company**, for the construction of a firewater pumping station at the **Kenai Pipeline (KPL) facility**.

This permit satisfies the obligation of the owner and operator to obtain a construction permit as set out in AS 46.14.130(a).

As required by AS 46.14.120(c), the Permittee shall comply with the terms and conditions of this construction permit.

[18 AAC 50.320(b), 1/18/97]

John F. Kuterbach, Acting Manager
Air Permits Program

Date

Table of Contents

List of Abbreviations Used in this Permit.....	3
Section 1. Identification.....	4
Section 2. General Emission Information.....	5
Section 3. Source Inventory and Description.....	6
Section 4. Source-Specific Requirements	7
Diesel Fired Internal Combustion Engines	7
Section 5. Generally Applicable Requirements	9
Section 6. General Source Testing and Monitoring Requirements.....	11
Section 7. General Recordkeeping, Reporting, and Compliance Certification Requirements ...	14
Section 8. Standard Conditions Not Otherwise Included in the Permit	17
Section 9. Visible Emissions and Particulate Matter Monitoring Plan.....	19
Section 10. Visible Emission Evaluation Procedures	22
Visible Emissions Observation Record.....	25
Section 11. Material Balance Calculation.....	26
Section 12. ADEC Notification Form.....	27

List of Abbreviations Used in this Permit

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AS	Alaska Statutes
ASTM	American Society of Testing and Materials
C.F.R.	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
dscf	Dry standard cubic feet
EPA	US Environmental Protection Agency
gr/dscf	grain per dry standard cubic feet (1 pound = 7000 grains)
GPH	gallons per hour
HAPS	Hazardous Air Pollutants [hazardous air contaminants as defined in AS 46.14.990(14)]
ID	Source Identification Number
MACT	Maximum Achievable Control Technology
Mlb	thousand pounds
NESHAPs	Federal National Emission Standards for Hazardous Air Pollutants [as defined in 40 C.F.R. 61]
NSPS	Federal New Source Performance Standards [as defined in 40 C.F.R. 60]
PPM	Parts per million
PS	Performance specification
PSD	Prevention of Significant Deterioration
RM	Reference Method
SIC	Standard Industrial Classification
SO ₂	Sulfur dioxide
TPH	Tons per hour
TPY	Tons per year
VOC	volatile organic compound [as defined in 18 AAC 50.990(103)]
Wt%	weight percent

Section 1. Identification**Names and Addresses**

Permittee: **Kenai Pipeline Company**
Kenai, AK 99611

Facility: **Kenai Pipeline (KPL) facility**

Location: 60° 41' 10"N; 151° 23' 15" W

Physical Address: Mile 22.5 Kenai Spur Highway
Kenai, AK 99611

Owner: Tesoro Alaska Company
3230 C Street
P.O. Box 196272
Anchorage, AK 99519-6272

Operator: Tesoro Alaska Company
P.O. Box 3369
Kenai, AK 99611

Permittee's Responsible Official: Mr. Rodney Cason, Vice President of Refining

Designated Agent: CT Corporation Systems
801 West 10th Street, Suite 300
Juneau, AK 99801

Facility and Building Contact: Mr. Shawn Brown
Superintendent of Pipelines and Terminals
Tesoro Alaska Company
P.O. Box 3369
Kenai, AK 99611
(907) 776-8191
SBrown@tesoropetroleum.com

Fee Contact: Ms. Lisa Kouf
Environmental Administrative Assistant
Tesoro Alaska Company
P.O. Box 3369
Kenai, AK 99611

SIC Code of the Facility:
5171 - Petroleum Bulk stations and Terminals

[18 AAC 50.320(a), 1/18/97]

Section 2. General Emission Information

Emissions of Regulated Air Contaminants, as provided in Permittee's application:

NO_x, SO₂, CO, PM₁₀, and VOC.

Construction Permit Classifications:

- a. The facility is classified under 18 AAC 50.300(h)(2).
- b. Tesoro Alaska Company is requesting limits as provided for in 18 AAC 50.305(a)(4) to avoid classification under 18 AAC 50.300(h)(3).

Facility Classifications as described under 18 AAC 50.300(b) through (g) or 305(a)(1) through (4):

- a. The Kenai Pipeline Facility is a PSD Major Facility classified under 18 AAC 50.300(c) as having VOC emissions greater than 100 tons per year (tpy). In addition, the Kenai Pipeline Facility is contiguous and adjacent to the Tesoro Kenai Refinery and is under common control. Therefore, the Kenai Pipeline Facility is part of the Tesoro Alaska Kenai Refinery Facility.

[18 AAC 50.320(a)(1), 1/18/97]

Section 3. Source Inventory and Description

Sources listed below have specific monitoring, record keeping, or reporting conditions in this permit. Source descriptions and ratings are given for identification purposes only.

TABLE 1 Source Inventory

ID	Source Name	Source Description	Rating/size
1	Firewater pump #1	Fisher 2500 firewater pump, Diesel-fired	420 HP
2	Firewater pump #2	Fisher 2500 firewater pump, diesel-fired	420 HP

Section 4. Source-Specific Requirements

Diesel Fired Internal Combustion Engines

Visible Emissions

1. The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source IDs 1-2 to reduce visibility through the exhaust effluent by greater than 20% for more than three minutes in any one hour.

Monitor, record, and report according to Section 9.

[18 AAC 50.055(a)(1), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]
[18 AAC 50.320(a)(2)(A-E), 1/18/97]

Particulate Matter

2. The Permittee shall not cause or allow particulate matter emitted from Source IDs 1-2 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

Monitor, record, and report according to Section 9.

[18 AAC 50.055(b)(1), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]
[18 AAC 50.320(a)(2)(A-E), 1/18/97]

Sulfur Compound Emissions

3. The Permittee shall not cause or allow sulfur compound emissions, expressed as SO₂, from Source IDs 1-2 to exceed 500 PPM averaged over three hours.

[18 AAC 50.055(c), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]

- 3.1 Compliance with this condition is assured by using a grade of fuel that limits sulfur content to a maximum of 0.35 percent by weight, such as DF-1 or DF-2.
- 3.2 Obtain a statement or receipt from the fuel supplier showing the grade of the fuel for each shipment of fuel delivered to the facility. If a certificate is not available from the supplier, analyze a representative sample of the fuel to determine the sulfur content using an approved ASTM method such as ASTM D975-84, D3120-92, D4152-90, D2622-91, and ASTM 396-92.
- 3.3 Report under Condition 24 whenever you receive fuel that does not meet the requirements of Condition 3.1. When reporting under this condition, include a material balance calculation of the sulfur compound emissions, in PPM, expected from this fuel, made in accordance with Section 11.

- 3.4 Include in the report required by Condition 25 a list of the fuel grades received at the facility during the reporting period, and any reports required by Condition 3.3.
- 3.5 Keep records of the sulfur contents of each shipment of fuel, each calculated three-hour SO₂ concentration, and all test results and calculations required under Conditions 3.2, 3.3, or 3.4. Report copies of the records with the report required by Condition 25.
- 3.6 Submit a report in accordance with Condition 24 if a three-hour exhaust concentration, calculated pursuant to Condition 3.3, is greater than 500 PPM.

[18 AAC 50.320(a)(2)(A-E), 1/18/97]

Limits to protect NAAQS/Increment

- 4. The Permittee shall not cause or allow emissions that violate National Ambient Air Quality Standards or Increments.

- 4.1 The Permittee shall limit fuel sulfur content as set out in Condition 3.1.
- 4.2 The Permittee shall limit hours of operation to 200 hours per 12-month period for each of Source IDs 1-2, for a total of 400 hours per 12-month period of operation.

[18 AAC 50.320(a)(2)(A-E), 1/18/97]

- 5. Monitoring and Recording:

- 5.1 Measure the fuel sulfur content of diesel burned in Source IDs 1-2, using any of the methods listed within Diesel Fuel ASTM D 396-92 or ASTM D 2880-87 (or later publications of the same listings) for each shipment of fuel, or use a monthly analysis of refinery product by the supplier.
- 5.2 Monitor and record the hours of operation for Source IDs 1-2 for each calendar month. Calculate the 12-month rolling total hours of operation for each source to ensure compliance with the owner-requested limits listed in Condition 4.2.
- 5.3 Monitor, record, and report according to Section 9.

Section 5. Generally Applicable Requirements

- 6. Good Air Pollution Control Practice.** The Permittee shall install, maintain, and operate, in accordance with manufacturer's procedures, fuel burning equipment, process equipment, emission control devices, testing equipment, and monitoring equipment to provide optimum control of air contaminant emissions during all operating periods. This condition is not federally-enforceable.
- [18 AAC 50.030, 1/18/97]
[18 AAC 50.320(a)(2)(A), 1/18/97]
- 7. Dilution.** The Permittee shall not dilute emissions with air to comply with this permit.
- [18 AAC 50.045(a) 1/18/97]
- 7.1 Unless waived in writing by the department, check all ductwork and exhaust systems for leaks, and repair any leaks found within 30 days prior to conducting a source test to demonstrate compliance with this permit and at other times if requested in writing by the department.
- [18 AAC 50.320(a)(2), 1/18/97]
- 7.2 Keep records of all inspections and repairs performed under this condition.
- [18 AAC 50.320(a)(2)(D), 1/18/97]
- 7.3 Upon request of the department, submit copies of the records.
- [18 AAC 50.320(a)(2)(E), 1/18/97]
- 8. Modification.** The Permittee shall not construct, operate, or modify a source that will result in a violation of the applicable emission standards or that will interfere with the attainment or maintenance of the ambient air quality standards or maximum allowable ambient concentrations.
- [18 AAC 50.045(c), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]
- 8.1 Obtain all permits or permit revisions required for construction, modification, or operation under 18 AAC 50 and AS 46.14.
- [18 AAC 50.320(a)(2), 1/18/97]
- 8.2 Comply with the conditions of all permits obtained under 18 AAC 50 and AS 46.14.
- [18 AAC 50.320(a)(2), 1/18/97]
- 9. Stack Injection.** The Permittee shall not release materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack at a source constructed or modified after November 1, 1982, unless approved in writing by the department.
- [18 AAC 50.055(g) & 18 AAC 50.310(m), 1/18/97]
- 10. Air Pollution Prohibited.** The Permittee shall not cause any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

[18 AAC 50.110, 5/26/72 & 18 AAC 50.040(e), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]

- 10.1 Within 24 hours of receiving a complaint that is attributable to emissions from the facility, investigate the complaint and initiate corrective actions to alleviate or eliminate the cause of the complaint.

[18 AAC 50.320(a)(2)(A-C), 1/18/97]

- 10.2 Keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for complaints attributable to emissions from the facility. Upon request of the department, submit copies of the records.

[18 AAC 50.320(a)(2)(D-E), 1/18/97]

- 11. HAP Reconstruction.** Before replacing components of a major source of HAPS as that term is defined in 40 C.F.R. 63.2, or a source that would become a major source as a result of replacement, if the cost of replacement exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source, the Permittee shall obtain written approval from the department

- 11.1 under 40 C.F.R. 63.5(b)(3), (d), and (e), if the source is subject to an emission standard of 40 C.F.R. 63, or

- 11.2 in a Notice of MACT Approval under 40 C.F.R. 63.43(f) – (h), if the source is subject to 40 C.F.R. 63.43(a).

[18 AAC 50.345(b), 6/21/98 & 18 AAC 50.320(a)(2), 1/18/97]
[18 AAC 50.335(a), 1/18/97]

Section 6. General Source Testing and Monitoring Requirements

- 12. Requested Source Tests.** In addition to any source testing explicitly required by this permit, the Permittee shall conduct source testing as requested by the department to determine compliance with applicable permit requirements.

[18 AAC 50.220(a) & 18 AAC 50.345(a)(10), 1/18/97]

- 13. Operating Conditions.** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing.

13.1 At a point or points that characterize the actual discharge into the ambient air; and

13.2 At the maximum rated burning or operating capacity of the source or another rate determined by the department to characterize the actual discharge into the ambient air.

[18 AAC 50.220(b), 1/18/97]

[18 AAC 50.320(a)(2)(A-C), 1/18/97]

- 14. Reference Test Methods.** The Permittee shall use the following as reference test methods when conducting source testing for compliance with this permit:

14.1 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.

[18 AAC 50.220(c) 1/18/97]

[18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.2 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 61.

[18 AAC 50.220(c) 1/18/97]

[18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.3 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) must be conducted in accordance with the source test methods and procedures specified in 40 C.F.R. 63.

[18 AAC 50.220(c), 1/18/97]

[& 18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.4 Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Section 10 of this permit.

[18 AAC 50.220(c), 1/18/97]

[18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.5 Source testing for emissions of particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified 40 C.F.R. 60, Appendix A.

[18 AAC 50.220(c) & 18 AAC 50.040, 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.6 Source testing for emissions of PM-10 must be conducted in accordance with the procedures specified in 40 C.F.R. 51, Appendix M.

[18 AAC 50.220(c), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

14.7 Source testing for emissions of any contaminant may be determined using an alternative method approved by the department in accordance with Method 301 in Appendix A to 40 C.F.R. 63.

[18 AAC 50.220(c), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

15. **Excess Air Requirements.** To determine compliance with this permit, standard exhaust gas volumes must only include the volume of gases formed from the theoretical combustion of fuel, plus the excess air volume normal for the specific source type, corrected to standard conditions (dry gas at 70° F and an absolute pressure of 760 millimeters of mercury).

[18 AAC 50.990(88) & 18 AAC 50.220(c)(3), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

16. **Test Plans.** Before conducting any source tests, the Permittee shall submit a plan to the Department. The plan must include the methods and procedures to be used for sampling, testing, and quality assurance, and must specify how the source will operate during the test and how the Permittee will document this operation. A complete plan must be submitted within 60 days of receiving a request under Condition 12 and at least 30 days before the scheduled date of any tests.

[18 AAC 50.345(a)(10), 1/18/97]
[18 AAC 50.320(a)(2) & 18 AAC 50.320(a)(2)(A-C), 1/18/97]

17. **Test Notification.** At least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and time the source test will begin.

[18 AAC 50.345(a)(10) & 18 AAC 50.335(g), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]

18. **Test Reports.** Within 45 days after completing a source test, the Permittee shall submit two copies of the results, to the extent practical, in the format set out in the *Source Test Report Outline* of Volume III, Section IV.3, of the State Air Quality Control Plan, adopted by reference in 18 AAC 50.030(8). The Permittee shall certify the results as set out in Condition 20 of this permit.

[18 AAC 50.345(a)(10), 1/18/97]
[18 AAC 50.320(a)(2) & 18 AAC 50.320(a)(2)(D), 1/18/97]

19. **Particulate Matter Calculations.** In source testing for compliance with the particulate matter standards in Conditions 2, 14, and 38, the three-hour average is determined using the average of three one-hour test runs. The source testing must account for those emissions caused by soot blowing, grate cleaning, or other routine maintenance activities, the periodic use of used oil, or any other non-routine operating parameter, by ensuring that at least one test run includes the emissions caused by the non-steady state activity and is

conducted under conditions that lead to representative emissions from the activity. The emissions must be quantified using the following equation:

$$E = E_M \left[(A + B) \times \frac{S}{R \times A} \right] + E_{NM} \left[\frac{(R - S)}{R} - \frac{B \times S}{R \times A} \right]$$

Where:

- E= the total particulate matter emissions of the source in grains per dry standard cubic foot (gr/dscf)
- E_M= the particulate matter emissions in gr/dscf measured during the test that included the routine maintenance activity.
- E_{NM}= the arithmetic average of particulate emissions in gr/dscf measured during by the test runs that did not include the maintenance activity.
- A= the period of routine maintenance activity occurring during the test run that included routine maintenance activity, expressed to the nearest hundredth of an hour.
- B= the total period of the test run, less A.
- R= the maximum period of source operation per 24 hours, expressed to the nearest hundredth of an hour.
- S= the maximum period of routine maintenance activity per 24 hours, expressed to the nearest hundredth of an hour.

[18 AAC 50.220(f), 1/18/97]
[& 18 AAC 50.320(a)(2)(A-C), 1/18/97]

Section 7. General Recordkeeping, Reporting, and Compliance Certification Requirements

- 20. Certification.** The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department under this permit by including the signature of a responsible official for the permitted facility following the statement: “Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.” For the same six-month reporting period, the excess emission reports submitted pursuant to Condition 24 may be certified with the operating report required by Condition 25 of this permit. All other reports must be certified upon submittal.

[18 AAC 50.205 & 18 AAC 50.345(a)(9), 1/18/97]
[18 AAC 50.320(a)(2) & 18 AAC 50.320(a)(2)(E), 1/18/97]

- 21. Submittals.** Unless otherwise directed by the department or this permit, the Permittee shall send reports, compliance certifications, and other documents required by this permit to ADEC, Air Permits Program, 610 University Avenue, Fairbanks, AK 99709-3643, ATTN: Compliance Technician.

[18 AAC 50.320(a)(2)(E), 1/18/97]

- 22. Information Requests.** The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit, or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by this permit. The Department, in its discretion, will require the Permittee to furnish copies of those records directly to the federal administrator.

[18 AAC 50.200 & 18 AAC 50.345(a)(8), 1/18/97]
[18 AAC 50.320(a)(2) & 18 AAC 50.320(a)(2)(A-E), 1/18/97]

- 23. Recordkeeping Requirements.** The Permittee shall keep all records required by this permit for at least five years after the date of collection, including

23.1 Copies of all reports and certifications submitted pursuant to this Section of this permit.

23.2 Records of all monitoring required by this permit, and information about the monitoring including

- a. calibration and maintenance records, original strip chart or computer-based recordings for continuous monitoring instrumentation;
- b. sampling dates and times of sampling and measurements;
- c. the operating conditions that existed at the time of sampling or measurement;
- d. the date analyses were performed;
- e. the location where samples were taken;

- f. the company or entity that performed the sampling and analyses;
- g. the analytical techniques or methods used in the analyses; and
- h. the results of the analyses.

[18 AAC 50.320(a)(2)(D), 1/18/97]

- 24. Excess Emission and Permit Deviation Reports.** The Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit or that present a potential threat to human health or safety as soon as possible, but no later than 48 hours, after the event commences. The report must include the information listed on the form contained in Section 12 of this permit. The Permittee may use this form to report emissions under this condition.

[18 AAC 50.235(a)(2) & 18 AAC 50.240(c), 1/18/97]

[18 AAC 50.320(a)(2)(E), 1/18/97]

- 25. Operating Reports.** During the life of this permit, the Permittee shall submit an original and two copies of an operating report by August 1 for the period January 1 to June 30, and by February 1 for the period July 1 to December 31. This report must include copies of the records required to be reported by the conditions of this permit. In addition, the report must include a listing of all deviations from the requirements of this permit that occurred during the reporting period. For each deviation, the report must identify

25.1 the date of the deviation;

25.2 the equipment involved;

25.3 the permit condition;

25.4 a description of the deviation; and

25.5 any corrective action or preventive measures taken and the date of such actions.

[18 AAC 50.320(a)(2)(A-E), 1/18/97]

- 26. Annual Compliance Certification.** Each year by February 1, the Permittee shall compile and submit an original and two copies of an annual compliance certification report as follows:

26.1 For each permit term and condition set forth in Section 4 through Section 7 of this permit, including terms and conditions for monitoring, reporting, and recordkeeping:

- a. certify the compliance status over the preceding calendar year consistent with the monitoring required by this permit;
- b. state whether compliance is intermittent or continuous; and
- c. briefly describe each method used to determine the compliance status.

26.2 Submit a copy of the report directly to the U.S. EPA-Region 10, Office of Air Quality, M/S OAQ-107, 1200 Sixth Avenue, Seattle, WA 98101.

[18 AAC 50.320(a)(2), 1/18/97]

Section 8. Standard Conditions Not Otherwise Included in the Permit

- 27.** Consistent with Alaska law, for purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any standard in this permit, nothing in this permit precludes the use of any credible evidence of information relevant to whether the facility would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[18 AAC 50.320(a)(2), 1/18/97]

[Federal Citation: 40 C.F.R. 52.12(c), 7/1/99]

- 28.** The Permittee must comply with each permit term and condition. Noncompliance constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act, except for those requirements designated as not federally-enforceable, and is grounds for:

28.1 an enforcement action,

28.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280, or

28.3 denial of an operating-permit renewal application.

[18 AAC 50.345(a)(1), 1/18/97]

[18 AAC 50.320(a)(1), 1/18/97]

- 29.** It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.

[18 AAC 50.345(a)(2), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

- 30.** Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit.

[18 AAC 50.345(a)(3), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

- 31.** Compliance with permit terms and conditions is considered to be compliance with those requirements that are:

31.1 included and specifically identified in the permit, or

31.2 determined in writing in the permit to be inapplicable.

[18 AAC 50.345(a)(4), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

- 32.** The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any operating permit condition.

[18 AAC 50.345(a)(5), 1/18/97]

[18 AAC 50.320(a-c), 1/18/97]

- 33.** The permit does not convey any property rights of any sort, nor any exclusive privilege.

[18 AAC 50.345(a)(6), 1/18/97]

[18 AAC 50.320(b), 1/18/97]

- 34.** The Permittee shall allow an officer or employee of the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator, to:

34.1 enter upon the premises where a source subject to the operating permit is located or where records required by the permit are kept,

34.2 have access to and copy any records required by the permit,

34.3 inspect any facilities, equipment, practices, or operations regulated by or referenced in the permit, and

34.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

[18 AAC 50.345(a)(7), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

Section 9. Visible Emissions and Particulate Matter Monitoring Plan**Visible Emissions Observations**

- 35.** Except as provided in Conditions 36, the Permittee shall observe visible emissions in the exhaust of each source as follows:
- 35.1 Within 6 months after the issue date of this permit and at least once every 1000 hours that a source operates thereafter, observe its exhaust for 60 minutes to obtain 240 individual 15-second readings in accordance with Section 10 of this permit; OR
 - 35.2 Each day that a source operates, observe the exhaust for the presence or absence of visible emissions, excluding condensed water vapor. Record the following information in a written log for each observation:
 - a. The date and time of the observation;
 - b. From TABLE 1 of this permit, the ID of the source observed;
 - c. Whether visible emissions are present or absent in the exhaust;
 - d. If the source starts operation on the day of the observation, the startup time of the source; and
 - e. Name, title, and signature of the person making the observation.
- 36.** The Permittee may reduce the number of visible emission observations required by Condition 35.2 to one observation for every 30 days of source operation if the source operates without visible emissions in the exhaust during the most recent 30 days of operation.

Corrective Actions Based on Visible Emissions Observations

- 37.** If visible emissions are present in the exhaust during an observation performed under Condition 35.2, the Permittee shall
- 37.1 Take actions to reduce visible emissions from the source within 24 hours of the observation;
 - 37.2 Keep a written record of the starting date, the completion date, and a description of the actions taken to reduce visible emissions; and
 - 37.3 After completing the actions taken to reduce visible emissions, observe the visible emissions in accordance with Condition 35.2. If visible emissions are present in the exhaust during any of the next 30 observations, observe the exhaust in accordance with Condition 35.1 no later than 14 calendar days after the visible emissions are first observed.

Particulate Matter Testing

- 38.** The Permittee shall conduct tests to determine the concentration of particulate matter in the exhaust of a source as follows:

- 38.1 Conduct the tests according to the requirements set out in Section 6 of this permit;
- 38.2 During each test, observe visible emissions in accordance with Section 10 and calculate the average opacity that was measured during the test. Submit the results of the visible emission observations and the calculation with the source test report.
- 38.3 Conduct the tests no later than 90 days after any time a 60-minute visible emission observation performed under this Section results in
 - a. 13 or more 15-seconds readings with an opacity greater than 20%; or
 - b. a six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches.

Reporting Requirements

- 39.** The Permittee is not required to comply with Conditions 16, 17 and 18 observing visible emissions under this section.
- 40.** Within 180 days after the effective date of this permit, the Permittee shall measure the exhaust stack diameter of each Source IDs 1-2 and report this information to the department with the next report required by Condition 25.
- 41.** The Permittee shall keep a record of the operating hours for each Source IDs 1-2. Submit these records with the report required by Condition 25.
- 42.** For all 60-minute visible emissions observations that occurred during an applicable reporting period, the Permittee shall submit copies of observation results with the report required by Condition 25.
- 43.** The Permittee shall submit a report in accordance with Condition 24 if:
- 43.1 a 60-minute visible emission observation results in
 - a. 13 or more 15-seconds readings with an opacity greater than 20%;
 - b. a six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches; or
 - 43.2 the results of a test for particulate matter exceed the particulate matter emission limit.

- 44.** 30 days after startup of a source listed in Section 3, provide a one-time notification to the Department electing one of the visible emission monitoring approaches listed in Condition 35.1 or Condition 35.2.

[18 AAC 50.320(a)(2)(A-E), 1/18/97]

Section 10. Visible Emission Evaluation Procedures

An observer qualified according to 40 C.F.R. 60, RM 9, shall use the following procedures to determine the reduction of visibility through the exhaust effluent.

Position. The qualified observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his observations from a position such that his line of vision is approximately perpendicular to the plume direction and, when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case the observer should make his observations with his line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses). The observer shall maintain a distance of at least 15 feet from the emission point.

Field Records. The observer shall record the name of the plant, emission location, facility type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on the sheet at the time opacity readings are initiated and completed.

Observations. Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume, but instead shall observe the plume momentarily at 15-second intervals. Unless directed to do otherwise in this permit, observe emissions for 60 consecutive minutes to obtain a minimum of 240 observations.

Attached Steam Plumes. When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

Detached Steam Plume. When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

Recording Observations. Opacity observations shall be recorded to the nearest 5 percent at 15-second intervals on the Visible Emissions Observation Record contained in this section. Record the minimum number of observations required by the permit. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

Data Reduction. To determine compliance with a standard set out in Section 4, Condition 1, of this permit, count the number of observations that exceed 20 percent opacity and record this number on the sheet.

To determine the six minute average opacity set out in Condition 38 of this permit, divide the observations recorded on the record sheet into sets of 24 consecutive observations. Sets need not be consecutive in time and in no case shall two sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. If an applicable standard specifies an averaging time requiring more than 24 observations, calculate the average for all observations made during the specified time period. Record the average opacity on the sheet.

Visible Emissions Field Data Sheet

Certified Observer: _____

Company: _____

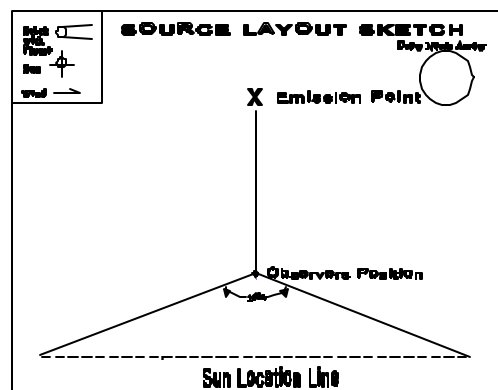
Location: _____

Test No.: _____ Date: _____

Source: _____

Production Rate, Operating Rate &
Unit Operating Hours: _____

Hrs. of observation: _____



Clock Time	Initial				Final
Observer location					
Distance to discharge					
Direction from discharge					
Height of observer point					
Background description					
Weather conditions					
Wind Direction					
Wind speed					
Ambient Temperature					
Relative humidity					
Sky conditions: (clear, overcast, % clouds, etc.)					
Plume description:					
Color					
Distance visible					
Water droplet plume? (attached or detached?)					
Other information					

Visible Emissions Observation Record

Page ____ of ____

Company _____ Certified Observer _____

Test Number _____ Clock time _____

[illegible]

Additional information:

Observer Signature

Data Reduction:

Duration of Observation Period (minutes) _____

Number of Observations _____

Number of Observations exceeding 20% _____

Average Opacity Summary

Set Number	Time Start—End	Opacity	
		Sum	Average

Section 11. Material Balance Calculation

If the sulfur content of a fuel shipment is greater than 0.5% by weight, calculate the three-hour exhaust concentration of SO₂ using the following equations:

$$A = 31,200 \times [\text{wt}\%S_{\text{fuel}}] = 31,200 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$B = 0.148 \times [\text{wt}\%S_{\text{fuel}}] = 0.148 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$C = 0.396 \times [\text{wt}\%C_{\text{fuel}}] = 0.396 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$D = 0.933 \times [\text{wt}\%H_{\text{fuel}}] = 0.933 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$E = B + C + D = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$F = 21 - [\text{vol}\%_{\text{dry}}O_{2,\text{exhaust}}] = 21 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$G = [\text{vol}\%_{\text{dry}}O_{2,\text{exhaust}}] \div F = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$H = 1 + G = 1 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$I = E \times H = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\text{SO}_2 \text{ concentration} = A \div I = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ PPM}$$

The **wt%*S*_{fuel}**, **wt%*C*_{fuel}**, and **wt%*H*_{fuel}** are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent (wt%) of sulfur is obtained pursuant to Condition 3.2. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (**vol%*O*_{2,exhaust}**) is obtained from oxygen meters, manufacturer's data, or from the most recent ORSAT analysis at the same engine load used in the calculation.

Enter all of the data in percentages without dividing the percentages by 100. For example, if **wt%*S*_{fuel}** = 1.0%, then enter 1.0 into the equations not 0.01 and if **vol%*O*_{2,exhaust}** = 3.00%, then enter 3.00, not 0.03.

[18 AAC 50.350(g), 1/18/97]

Section 12. ADEC Notification Form

Fax this form to: (907) 269-7508 Telephone: (907) 269-8888

Kenai Pipeline Company

Company Name

Kenai Pipeline (KPL) facility

Facility Name

1. Reason for notification:☐ **Excess Emission**☐ **Permit Condition Exceedance****2. Event Information (Use 24-hour clock):**

	START Time: (hr:min):	END Time:	Duration
Date: _____	_____	_____	_____
Date: _____	_____	_____	_____
	Total:	_____	_____

3. Cause of Event (Check all that apply):☐ **START UP**☐ **UPSET CONDITION**☐ **CONTROL EQUIPMENT**☐ **SHUT DOWN**☐ **SCHEDULED MAINTENANCE**☐ **OTHER** _____

Attach a detailed description of what happened, including the parameters or operating conditions exceeded.

4. Sources Involved:

Identify each Emission Source involved in the event, using the same identification number and name as in the Permit. List any Control Device or Monitoring System affected by the event. Attach additional sheets as necessary.

Source ID No.	Source Name	Description	Control Device
_____	_____	_____	_____
_____	_____	_____	_____

5. Emission Limit and/or Permit Condition Exceeded:

Identify each Emission Standard and Permit Condition exceeded during the event. Attach a list of ALL known or suspected injuries or health impacts. Attach additional sheets as necessary.

Permit Condition	Limit	Exceedance
_____	_____	_____
_____	_____	_____

6. Emission Reduction:

Attach a detailed description of ALL of the measures taken to minimize and/or control emissions during the event.

7. Corrective Actions:

Attach a detailed description of ALL corrective actions taken to restore the system to normal operation.

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name: _____

Signature: _____

Date: _____

Alaska Department of Environmental Conservation

Air Permits Program

August 30, 2000

Technical Analysis Report

Kenai Pipeline (KPL) facility

LEGAL AND FACTUAL BASIS
of the terms and conditions for
Permit No. 0023-AC010

INTRODUCTION

This document sets forth the legal and factual basis for the terms and conditions of Construction Permit No. 0023-AC010.

The **Kenai Pipeline (KPL) facility** is a marine vessel loading facility that provides equipment and services for loading and unloading of petroleum and petroleum products services for the Tesoro Alaska Company Refinery in Nikiski, Alaska. The facility is owned and operated by Tesoro Alaska Company. **Kenai Pipeline Company** is the Permittee for the facility's construction permit.

PROCESS DESCRIPTION

As provided in the application, the applicant proposes to install two new Fisher 2500 firewater pumps and an existing boiler. The firewater pumps will be installed in 2000. KPL subsequently asked that the boiler be removed from the facility inventory.

The sources at the facility regulated in Construction Permit 0023-AC010 are identified in TABLE 1 in Section 3 of the permit

SOURCE INVENTORY AND DESCRIPTION

Section 3 of Construction Permit No. 0023-AC010 contains TABLE 1 describing the sources regulated by the permit. The table is provided for information and identification purposes only. Specifically, the source rating/size provided in the table is not intended to create an enforceable limit.

EMISSIONS

Table 1. Emissions Summary

Pollutant	NO _x	CO	PM	SO ₂	VOC
Potential Emissions (TPY)	1.92	0.3	0.1	0.2	0.02
Assessable Potential to Emit (TPY)	0	0	0	0	0

The potential to emit was calculated from manufacturer provided data from Fisher Industries, from allowable fuel sulfur content limited as requested by the owner, and based on the owner-requested limits of 200 hours of operation for each of Source IDs 1-2 per 12-month period. Fisher Industries provided Tesoro Alaska Company with the following emission factors:

$$\text{NO}_x = 9.58 \text{ lb/hr}$$

$$\text{CO} = 1.24 \text{ lb/hr}$$

$$\text{PM} = 0.52 \text{ lb/hr}$$

$$\text{VOC} = 0.13 \text{ lb/hr}$$

SO₂ potential to emit was calculated from the requested limited hours of operation and an emission factor of 0.3627 lb/mmBTU based on the requested permit limit of 0.35% sulfur in diesel fuel and a higher heating value of 19,300 BTU/lb.

AMBIENT AIR MODELING ANALYSIS

The Department reviewed Tesoro's ambient air modeling analysis and concurs that the firewater pump project will not violate National Ambient Air Quality Standards (NAAQS) or Increments. (See June 20, 2000, Memorandum from Jeffrey Anderson to the KPL File through Jim Baumgartner.)

BASIS FOR REQUIRING A CONSTRUCTION PERMIT

Kenai Pipeline (KPL) facility requires an construction permit because it is a Prevention of Significant Deterioration (PSD) Major Facility as defined in 18 AAC 50.300(c)(1) because it has the potential to emit more than 100 tpy of a regulated air contaminant in an area classified as attainment or unclassifiable and is contiguous or adjacent to the Tesoro Kenai Refinery. However, **Kenai Pipeline (KPL) facility** has never under gone a PSD review because the facility was in full operation before 1977, and was never modified after August 8, 1980, to exceed the PSD trigger levels in 18 AAC 50.300(h)(3)(B).

Alaska regulations require construction permit applications to include identification of "regulated sources." As applied to **Kenai Pipeline (KPL) facility**, the state regulations require a description of:

Each new or modified incinerator, including a demonstration showing each requirement in 18 AAC 50.050, Incinerator Emissions Standards, that applies [18 AAC 50.335(e)(4)(A)];

Each new or modified source regulated by a standard in 18 AAC 50.055, Industrial Processes and Fuel Burning Equipment [18 AAC 50.335(e)(4)(C)];

Each new or modified source subject to a standard adopted by reference in 18 AAC 50.040 [18 AAC 50.335(e)(2)]; and

Sources subject to requirements in an existing DEC permit [18 AAC 50.335(e)(5)]

The new or modified emission sources at **Kenai Pipeline (KPL) facility** classified as "regulated sources" according to the above DEC regulations are listed in TABLE 1 of Permit No. 0023-AC010.

CURRENT AIR QUALITY PERMITS

Previous Air Quality Permit to Operate

No previous air quality control permit exists for this facility.

Construction Permits

No construction permits have been issued for this facility after January 18, 1997 (the effective date of the new divided operating and construction-permitting program).

Permit Application History

The owner or operator submitted an application on October 22, 1999.

The owner or operator amended this application through June 20, 2000.

The application was complete on June 20, 2000.

Additional information was received after the Department requested vendor data for the Fisher firewater pumps and the boiler. On June 20, 2000, Tesoro requested that the boiler be removed from the source inventory for the facility and from the application, based on the discovery that the boiler has been decommissioned since 1995. Tesoro disconnected all lines to and from the boiler after purchase of the KPL facility and has no plans to reconnect the boiler in the future.

COMPLIANCE HISTORY

The facility has operated at its current location since 1960. Review of the permit files for this facility, which includes the past inspection reports indicate a facility generally operating in compliance with air quality control requirements.

LEGAL AND FACTUAL BASIS FOR THE PERMIT CONDITIONS

Condition 1

Legal Basis: [18 AAC 50.055(a)(1), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

Diesel engines are fuel-burning equipment. This regulation applies to operation of all fuel-burning equipment in Alaska.

Factual Basis: The condition cites the state visible emission standard applicable to fuel-burning equipment. The Permittee shall not cause or allow the diesel engines to violate this standard.

The monitoring, recordkeeping, and reporting requirements are listed in Section 9 of the permit. The requirements for the visible emission and particulate matter standards are combined in this section.

There are two options for monitoring visible emissions. One option requires the Permittee to observe visible emissions in accordance with the state reference test method. The other option requires the Permittee to momentarily observe the exhaust for presence or absence of visible emissions.

Under the latter option, all sources are initially observed for the presence or absence of visible emissions in the exhaust for 30 operating days. Visible emissions are presumed to be absent if the exhaust exhibits less than 5 percent opacity. The department believes the initial thirty days is sufficient to capture all operating modes and to assure the monitoring determines if the engine complies with the visible emission standard. If visible emissions are absent during the 30 operating days, the monitoring frequency is relaxed to one observation for every 30 days of source operation. The department believes monthly checks are sufficient to monitor for the presence of increased visible emissions that may result from degradation of an engine.

If the Permittee observes smoke in the exhaust during the initial 30 operating days or during a monthly check, the Permittee must take action to reduce visible emissions from the source within 72 hours of the observation. After completing the action, the Permittee continues to observe the exhaust for the presence or absence of visible emissions for another 30 operating days. If smoke is observed during this 30-day period, the Permittee must observe visible emissions using the state reference test method within 14 days after the visible emissions are observed.

The recordkeeping requirements consist of keeping records of the results all visible emission observations and records of any actions taken to reduce visible emissions. The Permittee must report copies of the results of all observations done using the state reference test method with operating reports. The Permittee must report emissions in excess of the state visible emission standard.

Condition 2

Legal Basis: [18 AAC 50.055(b)(1), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

Diesel engines are fuel-burning equipment. This regulation applies to operation of all fuel-burning equipment in the State of Alaska.

Factual Basis: The condition cites the state particulate matter emission standard applicable to fuel-burning equipment. The Permittee shall not cause or allow diesel engines to violate this standard.

The monitoring, recordkeeping, and reporting requirements are listed in Section 9 and Condition 4 of the permit. The requirements for the visible emission and particulate matter standards are combined in this section.

The requirement to test for particulate matter to determine compliance with the standard is triggered by the results of observations conducted in accordance with the state reference test method. The Permittee is required to conduct tests if the results of an observation show noncompliance with visible emission standard or the average opacity indicates noncompliance with the particulate matter standard.

The department is not requiring initial tests to show compliance with the particulate matter standards. Based on manufacturers' data, the department believes that most new diesel engines comply with the particulate matter standard*. Also, there are opacity-particulate correlations† that show emissions from diesel engines commonly used in Alaska will meet the state standard of 0.05 grains per dry standard cubic foot if the average opacity in the exhaust is less than 20 percent. The department believes this is sufficient justification to not require initial compliance testing since the Permittee certified compliance with the visible emission standard in the application. However, the department is requiring testing if the Permittee observes visible emissions greater than the state standard.

In a general operating permit for diesel engines, the department required source tests for particulate matter when the average opacity of a visible emission observation exceeded twelve percent. Since that time, the department has uncovered additional test data and literature that supports a statement that diesel engines will meet the 0.05 grain loading standard when the average opacity is less than twelve percent, provided that the exhaust outlet diameter (path length for opacity observations) exceeds 21 inches. Testing conducted at both an Alaskan power plant and an Hawaiian utility confirm that compliance with the 20 percent opacity standard will insure compliance with the 0.05 gr/scf particulate standard, provided that the exhaust outlet is 21 inches or larger. This test data closely agrees with values obtained using the smoke density calculator at <http://www.dieselnet.com/calculator/index.html>. The calculator is based on the report, *Particulate Matter Measurements*, DieselNet Technology Guide, Revision 1997.12. Based on this new information, the department is requiring testing if the Permittee observes visible emissions greater than 12%, expressed as a six-minute average and the stack diameter if the

* See attached data

† See attached graph

source is less than 21 inches. The department is also requiring the Permittee to measure visible emissions during a source test and to calculate the average opacity during the test.

The Permittee must report copies of all source test reports and emissions in excess of the particulate matter standard.

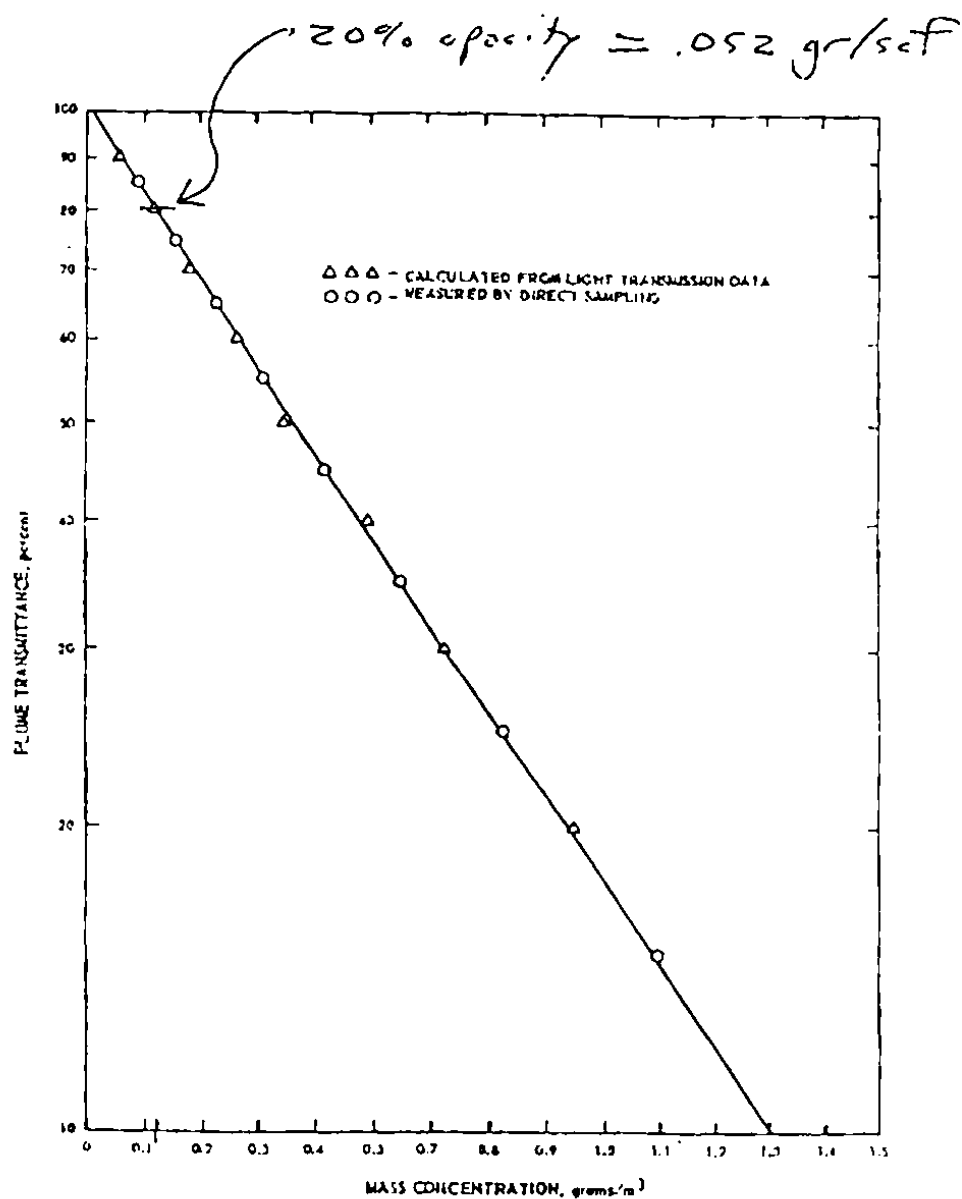


Figure 32. Mass concentration of black plume as calculated from transmittance and measured by direct sampling.

OPTICAL PROPERTIES AND VISUAL EFFECTS

	Test	Capacity MW	Capacity kW	lbhp	dscd	asfm	% moisture	Fahrenheit Gas temp.	%O ₂	gm/kwh-hr	g/kwhm	y/dscd
F02 0.2% S CAT	D398 JWAC	not avail.	not avail.	939	1969	5239	not avail.	890		0.09 n/a		0.008 From vendor
F02 0.2% S CAT	3412 DITTA	380	350	483	980	2161	not avail.	1203 n/a		0.08 n/a		0.008 From vendor
F02 0.2% S CAT	3516	1135	1135	1586	3261	9189		817 n/a		0.24 n/a		0.021 From vendor
F02 0.2% S CAT	3512	855	855	1205.7	2114	6003	not avail.	822 n/a		0.165 n/a		0.017 From vendor
F014.2 CAT	3516	1450	1200	n/a	3941.5	11228.4	6.82	874.6	10.5	n/a	n/a	0.028 METHOD 5
F014.2 CAT	3516	1450	1200	n/a	3927.5	11170.1	6.69	875.5	10.5	n/a	n/a	0.028 METHOD 5
F014.2 CAT	3518	1450	1200	n/a	3869.8	10963.3	6.64	877.7	10.3	n/a	n/a	0.030 METHOD 5
F02 0.2% S CAT	3606	1730	1730	2320	4644	13002	not avail.	817	15	0.15 n/a		0.012 From vendor
F02 0.2% S CAT	3608	2300	2300	3064	5690	16744	not avail.	811	15	0.29 n/a		0.023 From vendor
F02 0.2% S CAT	3608	2460	2460	3299	18282	not avail.		815	15	0.24 n/a		0.018 From vendor
F02 0.2% S CAT	3812	3460	3460	4640	8288	26005	not avail.	797	15	0.15 n/a		0.012 From vendor
F02 0.2% S CAT	3612	3700	3700	4962	10143	28399	not avail.	836	15	0.28 n/a		0.021 From vendor
F02 0.2% S CAT	3618	4800	4600	6159	11960	33469	not avail.	811	15	0.39 n/a		0.029 From vendor
F02 0.2% S CAT	3616	4920	4920	6598	13774	38566	not avail.	795	15	0.24 n/a		0.01862 From vendor
F02	Allias Copc 12 cylinder	-600	-600	800	1548	3232		548	13.2 n/a	n/a	n/a	0.00662 METHOD 5
F02	Allias Copc 12 cylinder	-800	-800	800	1522	3156		547	13.1 n/a	n/a	n/a	0.00615 METHOD 5
F02	Allias Copc 12 cylinder	-600	-600	800	1534	3205		555	13.1 n/a	n/a	n/a	0.018 METHOD 5
F02	Allias Copc 8 cylinder	-375	-375	500	1022	2025		497	13.2 n/a	n/a	n/a	0.020 METHOD 5
F02	Allias Copc 8 cylinder	-375	-375	500	1062	2084		495	13.2 n/a	n/a	n/a	0.018 METHOD 5
F02	Allias Copc 8 cylinder	-375	-375	500	1110	2159		488	13.5 n/a	n/a	n/a	0.018 METHOD 5
F016.2 Flusion	12RKC	2200	1850	2500	6497.5	18612.0	6.43	760.4	11.0 n/a	n/a	n/a	0.025 METHOD 5
F016.2 Flusion	12RKC	2200	1850	2500	6482.8	16383.6	6.35	744.4	11.0 n/a	n/a	n/a	0.022 METHOD 5
F016.2 Flusion	12RKC	2200	1850	2500	6588.7	16572.5	6.31	747.0	11.0 n/a	n/a	n/a	0.021 METHOD 5
F02 0.2% S CAT	311BDTAA	2400	201.15	not avail.	150	not avail.	not avail.	not avail.	5	0.22		0.022 From vendor
F02 0.2% S CAT	311BDTAA	2400	254.79	not avail.	190	not avail.	not avail.	not avail.	5	0.23		0.038 From vendor
F02 0.2% S CAT	311BDTAB	2400	286.2	not avail.	200	not avail.	not avail.	not avail.	5	0.23		0.037 From vendor
F02 0.2% S CAT	311BDTAA B	2400	221.265	not avail.	165	not avail.	not avail.	not avail.	5	0.22		0.028 From vendor
F02 0.2% S CAT	311BDTAA C	2300	268.2	not avail.	200	not avail.	not avail.	not avail.	5	0.23		0.030 From vendor
F02 0.2% S CAT	311BDTAA C	2200	261.495	not avail.	195	not avail.	not avail.	not avail.	5	0.16		0.026 From vendor
F02 0.2% S CAT	311BDTAA C	2100	248.085	not avail.	185	not avail.	not avail.	not avail.	5	0.15		0.026 From vendor
F02 0.2% S CAT	311BDTAA C	2000	241.38	not avail.	180	not avail.	not avail.	not avail.	5	0.15		0.026 From vendor
F02 0.2% S CAT	311BDTAA C	2500	241.38	not avail.	175	not avail.	not avail.	not avail.	5	0.32		0.037 From vendor
F02 0.2% S CAT	311BDTAA C	2400	234.675	not avail.	160	not avail.	not avail.	not avail.	5	0.23		0.037 From vendor
F02 0.2% S CAT	311BDTAA C	2200	214.56	not avail.	160	not avail.	not avail.	not avail.	5	0.26		0.038 From vendor
F02 0.2% S CAT	311BDTAA C	2100	201.15	not avail.	150	not avail.	not avail.	not avail.	5	0.27		0.044 From vendor
F02 0.2% S CAT	311BDTAA C	2000	194.445	not avail.	145	not avail.	not avail.	not avail.	5	0.29		0.052 From vendor
F02 0.2% S CAT	311BDTAA C	1950	180.115	not avail.	150	not avail.	not avail.	not avail.	5	0.30		0.057 From vendor
F02 0.2% S CAT	311BDTAA C	1800	241.38	not avail.	180	not avail.	not avail.	not avail.	5	0.23		0.014 From vendor
F02 0.2% S CAT	311BDTAA C	2400	187.74	not avail.	140	not avail.	not avail.	not avail.	5	0.22		0.025 From vendor
F02 0.2% S CAT	311BDTAA C	2400	201.15	not avail.	150	not avail.	not avail.	not avail.	5	0.22		0.031 From vendor
F02 0.2% S CAT	311BDTAA C	2400	207.855	not avail.	155	not avail.	not avail.	not avail.	5	0.23		0.034 From vendor
F02 0.2% S CAT	311BDTAA C	2200	194.445	not avail.	150	not avail.	not avail.	not avail.	5	0.24		0.030 From vendor
F02 0.2% S CAT	311BDTAA C	2200	181.005	not avail.	145	not avail.	not avail.	not avail.	5	0.28		0.037 From vendor
F02 0.2% S CAT	311BDTAA C	2100	181.005	not avail.	135	not avail.	not avail.	not avail.	5	0.22		0.033 From vendor
F02 0.2% S CAT	311BDTAA C	2000	174.33	not avail.	130	not avail.	not avail.	not avail.	5	0.22		0.030 From vendor
A&B Continuous												
C Intermittent												

Condition 3.

Legal Basis: [18 AAC 50.055(c), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

The condition applies to diesel engines because the engines are fuel-burning equipment.

Factual Basis: The condition re-iterates a sulfur emission standard applicable to fuel-burning equipment. The Permittee may not cause or allow their equipment to violate this standard.

Sulfur dioxide comes from the sulfur in the liquid, hydrocarbon fuel (e.g., diesel or No. 2 fuel oil). Attachment 1 of this document provides the proof of the stoichiometric, mass-balance equations to calculate sulfur-dioxide concentration of the exhaust gas from the combustion of fuel with ambient air. According to these equations, fuel containing no more than 0.5% sulfur by weight will always comply with the emission standard. For fuels with a sulfur content higher than 0.5%, the condition requires the Permittee to use Section 11 to calculate the sulfur-dioxide concentration using the equations to show that the standard is not exceeded.

Either fuel sulfur testing or verification of ASTM fuel grade will verify compliance.

Conditions 4 and 5.

Legal Basis: [18 AAC 50.320(a)(2)(A-E), 1/18/97]

The condition applies to diesel engines because the engines are fuel-burning equipment.

Factual Basis: The conditions ensure that the project will not violate National Ambient Air Quality Standards (NAAQS) and Increments. The conditions are based on owner-requested limits for fuel sulfur content and hours of operation. Tesoro ran an ambient air analysis including the new firewater pumps operating under the limits requested in the permit application. Tesoro's analysis showed that emissions from the pumps would not violate NAAQS or Increments. The Department reviewed Tesoro's ambient air analysis. Based on the analysis, the Department concurs that the firewater pumps will not violate NAAQS or Increments (see attached June 20, 2000, Memorandum from Jeffrey Anderson to the KPL file through Jim Baumgartner).

Condition 6

Legal Basis: [18 AAC 50.030, 1/18/97]

[18 AAC 50.320(a)(2)(A), 1/18/97]

This condition is necessary to implement a requirement in 18 AAC 50 and Alaska's federally-approved SIP.

Factual Basis: This condition restates a requirement in Alaska's federally-approved SIP.

Condition 7

Legal Basis: [18 AAC 50.045(a), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

Applies to the Permittee because the Permittee must comply with emission standards in 18 AAC 50.

Factual Basis: The requirement prohibits diluting emissions as a means of compliance. In practical terms, dilution only affects compliance when the emissions are being measured. Therefore, the monitoring is limited to immediately before source testing and once a year for exhaust that is continuously monitored.

Dilution can occur by design or by leaks in the exhaust ductwork. Intentional dilution is not expected to be a problem, as it would increase operating costs by increasing induced draft fan power requirements. Careful review of source test plans and operating conditions will prevent intentional dilution. Therefore, only leaks need to be monitored under this condition.

The monitoring adequately prevents dilution by requiring leaks to be repaired before compliance with the emission standards is measured.

Condition 8

Legal Basis: [18 AAC 50.045(c), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

Applies to the Permittee because they will operate a source in Alaska.

Factual Basis: This requirement prohibits violation of the air quality standards. Alaska's air quality control plan uses construction permit to ensure that new or increased pollution will not violate these standards. Therefore, as long as the Permittee obtains and complies with the required construction permits, the new or increased pollution will not violate the standards.

Monitoring simply requires the Permittee to obtain and comply with all required permits.

Condition 9

Legal Basis: [18 AAC 50.055(g) & 18 AAC 50.310(m), 1/18/97]

Applies to the facility because the facility contains a stack or source modified after November 1, 1982.

Factual Basis: The condition restates the prohibition on stack injection (i.e., disposing of material by injecting it into a stack). No specific monitoring for this condition is practical. Compliance is ensured by inspections, because the source or stack would need to be modified to accommodate stack injection.

Condition 10

Legal Basis: [18 AAC 50.110, 5/26/72]
[18 AAC 50.040(e), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]

Applies to the facility because the facility will have emissions.

Factual Basis: The condition restates the general prohibition on injurious air emissions, which applies to any emissions from the facility. While the other permit conditions and emissions limitation should ensure compliance with this condition, unforeseen emission impacts can violate this standard. These violations would go undetected except for complaints from affected persons. Therefore, to monitor compliance, the Permittee must monitor and respond to complaints.

The Permittee is to report any complaints and injurious emissions. The plant does not handle any large quantities of hazardous air pollutants. The Permittee must keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for these complaints and to submit copies of these records upon request of the department.

Condition 11

Legal Basis: [18 AAC 50.345(b), 6/21/98]
[18 AAC 50.320(a)(2), 1/18/97]
[18 AAC 50.335(a), 1/18/97]

Applies to the facility because the facility is a hazardous air contaminant major facility as described in 18 AAC 50.300(f).

Factual Basis: The Permittee must obtain written approval from the department before reconstructing a HAP-major source. Pre-construction approval for reconstructing a HAP major source is a requirement of the Clean Air Act. Alaska's construction permit program does not require a construction permit for reconstructing a source, only for reconstructing a facility. Therefore, this condition is a standard condition in all hazardous air contaminant major facility operating permits.

Condition 12

Legal Basis: [18 AAC 50.345(a)(10), 1/18/97]
[18 AAC 50.220a), 1/18/97]

Standard condition to be included in all permits.

Factual Basis: The condition requires the Permittee to conduct source tests as requested by the department, therefore no monitoring is needed. Conducting the requested source test is its own monitoring.

Conditions 13 through 15

Legal Basis: [18 AAC 50.220(b) & (c), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]
[18 AAC 50.990(88), 1/18/97]

Applies when the Permittee is required to conduct a source test.

Factual Basis: These conditions restate regulatory requirements for source testing. As such, they supplement the specific monitoring requirements stated elsewhere in this permit. The tests reports required by later conditions adequately monitor compliance with these conditions, therefore no specific monitoring, reporting, or recordkeeping is needed.

Conditions 16 through 18

Legal Basis: [18 AAC 50.345(a)(10), 1/18/97]
[18 AAC 50.320(a)(2), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

Applies when the Permittee is required to conduct a source test.

Factual Basis: Standard condition 18 AAC 50.345(a)(10) is incorporated through these three conditions. Because this standard condition supplements specific monitoring requirements stated elsewhere in this permit, no monitoring, reporting, or recordkeeping is required. The source test itself is adequate to monitor compliance with this condition.

Condition 19

Legal Basis: [18 AAC 50.220(f), 1/18/97]
[18 AAC 50.320(a)(2)(A-C), 1/18/97]

Applies when the Permittee tests for compliance with the particulate matter standard.

Factual Basis: The condition incorporates a regulatory requirement for particulate matter source tests. The Permittee must use a certain equation to calculate the particulate-matter emission concentration from the source test results. Because this condition supplements specific monitoring requirements stated elsewhere in this permit, no monitoring, reporting, or recordkeeping is required.

Condition 20

Legal Basis: [18 AAC 50.205, 1/18/97]
[18 AAC 50.345(a)(9), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

[18 AAC 50.320(a)(2)(E), 1/18/97]

Applies because the permit requires the Permittee to submit reports, and because the condition is a standard condition.

Factual Basis: This condition restates the regulatory requirement that all reports must be certified. To ease the certification burden, the condition allows the excess emission reports to be certified with the semi-annual operating report, although the excess emission reports must be submitted more frequently. This condition supplements the reporting requirements of the permit and no monitoring, recordkeeping or reporting for this condition is needed.

Condition 21

Legal Basis: [18 AAC 50.320(a)(2)(E), 1/18/97]

Applies because the Permittee is required to send reports to the department.

Factual Basis: This condition merely specifies where submittals to the department should be sent. Receipt of the submittal at the correct department office is sufficient monitoring for this condition. This condition supplements the reporting requirements of the permit and no monitoring, recordkeeping or reporting for this condition is needed.

Condition 22

Legal Basis: [18 AAC 50.200, 1/18/97]

[18 AAC 50.345(a)(8), 1/18/97]

[18 AAC 50.320(a)(2), 1/18/97]

[18 AAC 50.320(a)(2)(A-E), 1/18/97]

Applies to all Permittees, and incorporates a standard condition

Factual Basis: Incorporates a standard condition in regulation, which tells the Permittee to submit information requested by the department. Receipt of the requested information is adequate monitoring.

Condition 23

Legal Basis: [18 AAC 50.320(a)(2)(D), 1/18/97]

Applies to records required by a permit.

Factual Basis: The condition restates the regulatory requirements for recordkeeping, and supplements the recordkeeping defined for specific conditions in the permit. The records being kept provide adequate evidence of compliance with this requirement, therefore, no additional monitoring, recordkeeping, or reporting is required.

Condition 24

Legal Basis: [18 AAC 50.235(a)(2), 18 AAC 50.240(c), 1/18/97]

[18 AAC 50.320(a)(2)(E), 1/18/97]

Applies when the emissions or operations deviate from the requirements of the permit.

Factual Basis: This condition satisfies two regulatory requirements related to excess emissions—the technology-based emission standard regulation and the excess emission regulation. Although there are some differences between the regulations, the condition satisfies the requirements of each regulation.

The condition does not mandate the use of the department's reporting form, but it does specify that the information listed on the form must be included in the report.

The reports themselves and the other monitoring records required under this permit provide an adequate monitoring of whether the Permittee has complied with the condition. Therefore, no additional monitoring, recordkeeping or reporting is required.

Condition 25

Legal Basis: [18 AAC 50.320(a)(2)(A-E), 1/18/97]

Applies to all permits.

Factual Basis: The condition restates the requirements for reports listed in regulation. The condition supplements the specific reporting requirements elsewhere in the permit and does not need any monitoring, recordkeeping or reporting. The reports themselves are adequate monitoring for compliance with this condition.

Condition 26

Legal Basis: [18 AAC 50.320(a)(2), 1/18/97]

Applies to all Permittees.

Factual Basis: This condition specifies the periodic compliance certification requirements, and specifies a due date for the annual compliance certification. Because this requirement is a report, no monitoring, recordkeeping or reporting is needed.

Condition 27

Legal Basis: [18 AAC 50.320(a)(2), 1/18/97]

[Federal Citation: 40 C.F.R. 52.12(c), 7/1/99]

Applies to all federally-approved permits.

Factual Basis: This condition clarifies that any credible evidence can be used to verify compliance with the permit, not just the monitoring required under the permit. This condition is necessary to ensure compliance with the Clean Air Act. No monitoring, recordkeeping, or reporting is necessary for this condition.

Conditions 28 through 34

Legal Basis: [18 AAC 50.345(a), 1/18/97]

[18 AAC 50.320(a-c), 1/18/97]

Applies to all operating permits.

Factual Basis: These are standard conditions required for all operating permits.

Conditions 35 through 44

Legal Basis: [18 AAC 50.320(a)(2(A-E), 1/18/97]

Applies because these conditions detail the monitoring, recordkeeping, and reporting required in Conditions 1 and 2.

Factual Basis: Each permit term and condition must include monitoring, recordkeeping and reporting for the Permittee to show verifiable compliance with each permit term and condition.

ATTACHMENT 1**MEMORANDUM**

State of Alaska
Department of Environmental Conservation
Division of Air and Water Quality - Air Quality Maintenance

TO: John Stone, Chief

DATE: March 24, 1998

FILE: 74.05.02

FROM: John Kuterbach
Air Quality MaintenanceSUBJECT: Maximum SO₂ Concentration
from the combustion of #2
diesel fuel

EPA in their Title V permit reviews is requiring the department to demonstrate that limiting fuel sulfur to 0.5% will ensure compliance with our 500 ppmv SO₂ limit. This memorandum sets forth engineering calculations which demonstrate that combustion of #2 diesel fuel containing up to 0.5% sulfur will always comply with the 500 ppmv SO₂ limit regardless of the engine involved. I recommend that we reference these calculations in future "statements of basis" that we send to EPA with our draft operating permits.

Summary

This engineering calculation examined the stoichiometric combustion of #2 diesel fuel and calculated the maximum sulfur dioxide content of the flue gases. Typically, combustion of #2 diesel fuel can produce up to 338 ppmv SO₂ in the flue gas. Although this figure varies proportionally with the carbon content of the diesel fuel, the figure will never exceed the 500ppm limit.

I conclude that combustion of #2 diesel fuel with air will always comply with the 500ppmv emission limit. The ASTM specification for #2 diesel fuel limits sulfur to 0.5% or less.

Assumptions

All constituents of the fuel are burned proportionally

Any excess air typical of combustion would tend to dilute the SO₂ concentration in the flue gas, therefore only theoretical air is considered.

#2 diesel fuel is composed of Carbon, Hydrogen, Sulfur, and negligible amounts of Water and ash.

Ignore the water because the standard is a dry standard and the water will drop out of any calculations.

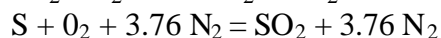
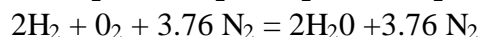
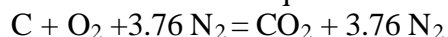
Ignore the ash as negligible unless the study predicts an SO₂ concentration greater than 450 ppm.

Typical #2 diesel fuel is composed of 87% Carbon, 12.5% Hydrogen, and 0.5% Sulfur
Calculations.

Using normal air for combustion (79% N₂ and 21% O₂):

For each lb-mole of Oxygen in Air, there is 3.76 lb-mole Nitrogen (1 lb-mole O₂) = (0.79/0.21)
= 3.76 lb-mole N₂

The stoichiometric equations are:



To calculate the dry exhaust gases (CO₂, N₂, SO₂) the following equations are used:

$$\text{moles CO}_2 = (\text{lb C}) \times (1 \text{ lb-mole C}/12.01 \text{ lb C}) \times (1 \text{ lb-mole CO}_2/1 \text{ lb mole C})$$

$$\text{moles N}_2 = (\text{lb C}) \times (1 \text{ lb-mole C}/12.01 \text{ lb C}) \times (3.76 \text{ lb-mole N}_2/\text{lb-mole C})$$

$$+ (\text{lb H}_2) \times (1 \text{ lb-mole H}_2/2.016 \text{ lb H}_2) \times (3.76 \text{ lb-mole N}_2/2 \text{ lb-mole H}_2)$$

$$+ (\text{lb S}) \times (1 \text{ lb-mole S}/32.06 \text{ lb S}) \times (3.76 \text{ lb-mole N}_2/\text{lb-mole S})$$

$$\text{moles SO}_2 = + (\text{lb S}) \times (1 \text{ lb-mole S}/32.06 \text{ lb S}) \times (\text{lb-mole SO}_2/1 \text{ lb-mole S})$$

Condensing these equations leaves:

$$\text{moles CO}_2 = \text{lb C}/12.01$$

$$\text{moles N}_2 = 3.76 \times [(\text{lb C}/12.01) + (\text{lb H}_2/4.032) + (\text{lb S}/32.06)]$$

$$\text{moles SO}_2 = \text{lb S}/32.06$$

Then, by Avogadro's Law and the definition of mole:

$$\text{ppmv SO}_2 = 1,000,000 \times [\text{moles SO}_2/(\text{moles CO}_2 + \text{moles N}_2 + \text{moles SO}_2)]$$

Results

Using 100 pounds of fuel as a basis, we examined the following three cases:

Case	Pounds in Fuel		
	Carbon	Hydrogen	Sulfur
1	87	12.5	0.5
2	96	3.5	0.5
3	78	21.5	0.5

Case 1 is the normal case, Case 2 increases carbon by 10 percent, and Case 3 decreases carbon by 10 percent.

	Case 1	Case 2	Case 3
moles CO ₂	7.24	7.99	6.49
moles N ₂	38.94	33.36	44.51
moles SO ₂	0.0156	0.0156	0.0156
Total Dry Moles	46.196	41.366	51.016
ppmv SO ₂	338	377	306

Conclusion

The above calculations show that #2 diesel fuel combusted with air will always comply with the 500 ppmv SO₂ limit. The calculations use the conservative assumptions of complete combustion and no excess air. The real-world includes partial combustion and excess air, both of which would tend to dilute the SO₂ concentration in the exhaust effluent.

The equations above can be used as an initial screening for other petroleum fuels even with a higher sulfur content or significant ash.

If you agree this memorandum has value, please share it with the rest of the AQM staff.

Table 2. Permit No. 0023-AC010, Compliance, Monitoring, Recordkeeping and Reporting

Requirement #	Federal/State Citation	Description	Applicant's Proposed Compliance Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Monitoring Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Record Keeping Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Reporting Plan (if non-standard requirement)	Condition No.
141	18 AAC 50.055(a)(1)	Greater than 20% opacity for more than 3 minutes/hour Visible Emissions – Incinerators; Industrial Processes and Fuel-Burning Equipment	Standard Requirement	1	Standard Requirement	35 - 43	Standard Requirement	35 - 43	Standard Requirement	35 - 43
148	18 AAC 50/055(b)(1)	0.05 gr/dscf Particulate Matter Emissions – Industrial Processes and Fuel-Burning Equipment, General Concurrence GC-13A for Flaring	Standard Requirement	2	Standard Requirement	35 - 43	Standard Requirement	35 - 43	Standard Requirement	35 - 43
153	18 AAC 50.055(c)	500 ppm (as SO ₂) Sulfur Compound Emissions - Industrial processes and Fuel-Burning Equipment (except for petroleum refineries and pulp mills)	Standard Requirement	3	Standard Requirement	3.1	Standard Requirement	3.2, 3.5	Standard Requirement	3.3, 3.4 & 3.6
158	18 AAC 50.055(g), 18 AAC 50.310(m)(2)	Stack Injection - Injection of material into a stack such as raw sewage, etc., After 11/1/82	Standard Requirement	9	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	N/A
164	18 AAC 50.110	Air Pollution Prohibited - Any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property	Standard Requirement	10	Standard Requirement	10.1	Standard Requirement	10.2	Standard Requirement	10.2

Table 2. Permit No. 0023-AC010, Compliance, Monitoring, Recordkeeping and Reporting

Requirement #	Federal/State Citation	Description	Applicant's Proposed Compliance Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Monitoring Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Record Keeping Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Reporting Plan (if non-standard requirement)	Condition No.
165	AS 46.14.120(a) and (b), AS 46.14.130, 18 AAC 50.300, 18 AAC 50.305, 6 AAC 50.050(e) [GC-13B], 18 AAC 50.325(c)	Classifications and requirement to get a permit - Facility	Standard Requirement	8	Standard Requirement	8.1	Standard Requirement	8.2	Standard Requirement	8.2
166	18 AAC 50.045	Circumvention/Prohibitions: Dilution air, Dispersion techniques - Any Activity (except a sulfur recovery unit less than or equal to 20 long tons per day rated capacity)	Standard Requirement	6	Standard Requirement	7.1	Standard Requirement	7.2	Standard Requirement	7.3
175	18 AAC 50.200	Information Requests	Standard Requirement	22	Standard Requirement	N/A	Standard Requirement	22	Standard Requirement	22
177	18 AAC 50.205	Certification Requirements	Standard Requirement	20	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	20
178	18 AAC 50.220(c) 18 AAC 50.320(a)(2)(A-C)	Reference Test Methods - Test Plans, Operating Conditions, Excess Air Requirements and Particulate Matter Calculations	Standard Requirement	14, 15	Standard Requirement	N/A	Standard Requirement	15, 19	Standard Requirement	16
179	18 AAC 50.240	Excess Emissions	Standard Requirement	24	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	24
181	18 AAC 50.345(a)	Standard Conditions – Test Notification, Test Reports	Standard Requirement	17, 18	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	17, 18
182	18 AAC 50.345(b)	Standard condition for a hazardous air contaminant major facility	Standard Requirement	11	Standard Requirement	11	Standard Requirement	11	Standard Requirement	11
186	18 AAC 50.320(a)(2)(A)	Good Air Pollution Control Practice - Any requirement of AS 46.14 or 18 AAC 50 not otherwise specifically	Standard Requirement	6	Standard Requirement	6	Standard Requirement	6	Standard Requirement	6

Source List Citations

Table 2. Permit No. 0023-AC010, Compliance, Monitoring, Recordkeeping and Reporting

Requirement #	Federal/State Citation	Description	Applicant's Proposed Compliance Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Monitoring Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Record Keeping Plan (if non-standard requirement)	Condition No.	Applicant's Proposed Reporting Plan (if non-standard requirement)	Condition No.
		identified.								
191	18 AAC 50.320(a)(2)	Compliance Certification - Permit must include provisions requiring periodic compliance certifications	Standard Requirement	20	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	20
194	18 AAC 50.320(a)(2)(E)	Reports and submittals must be submitted to Fairbanks	Standard Requirement	21	Standard Requirement	21	Standard Requirement	21	Standard Requirement	21
195	18 AAC 50.320(a)(2)(D)	Recordkeeping Requirements	Standard Requirement	23	Standard Requirement	N/A	Standard Requirement	23	Standard Requirement	N/A
196	18 AAC 50.320(a)(2)(A-E)	Operating Reports	Standard Requirement	25	Standard Requirement	N/A	Standard Requirement	N/A	Standard Requirement	25

Requirement #	Federal Citation	State Regulation Citation	State Incorporation by Reference of Federal Citation	SIP Regulation Citation in SIP (Old 18 AAC 50)	Description	Applicable	Comments/Source Numbers
81	40 C.F.R. 61 Subpart A	None	18 AAC 50.040(b)(1)	None	General Provisions	Y	Generally applicable requirement, because Subpart M (asbestos) is generally applicable
92	40 C.F.R. 61 Subpart M	None	18 AAC 50.040(b)(3)	None	Asbestos - Asbestos mills, roadways, manufacturing, demolition and renovation, spraying, conversion, fabricating, insulating materials, waste disposal, mill and fabricating inactive waste disposal sites	Y	Generally applicable requirement, triggered during any future renovation project involving removal of asbestos laden materials.
138	40 C.F.R. 82 Subpart F	None	18 AAC 50.040(d)	None	Refrigerant Recycling and Disposal - Any person servicing, maintaining, or repairing appliances except for motor vehicle air conditioners & to persons disposing of appliances, incl. motor vehicle air cond.	Y	Generally applicable requirement
140	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.065	18 AAC 50.040(e)	18 AAC 50.030	Open burning - Open burning which produces black smoke; firefighter training by a fire service registered with the state fire Marshall under 13 AAC 52.030	Y	Generally applicable requirement
141	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.050(a)(2) 18 AAC 50.055(a)(1)	18 AAC 50.040(e)	18 AAC 50.040(a)(2) 18 AAC 50.050(a)(1)	Greater than 20% opacity for more than 3 minutes/hour Visible Emissions - Incinerators; Industrial Processes and Fuel-Burning Equipment	Y	Source ID 1-2
148	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.055(b)(1)	18 AAC 50.040(e) 6 AAC 50.050(e) [GC-13A]	18 AAC 50.050(b)(1)	0.05 gr/dscf Particulate Matter Emissions - Industrial Processes and Fuel-Burning Equipment, General Concurrence GC-13A for Flaring	Y	Generally applicable requirement
153	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.055(c)	18 AAC 50.040(e)	18 AAC 50.050(c)	500 ppm (as SO ₂) Sulfur Compound Emissions - Industrial processes and Fuel-Burning Equipment (except for petroleum refineries and pulp mills)	Y	Generally applicable requirement
158	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.055(g), 18 AAC 50.310(m)(2)	18 AAC 50.040(e)	18 AAC 50.050(e)	Stack Injection - Injection of material into a stack such as raw sewage, etc., After 11/1/82	Y	Generally applicable requirement
159	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.045(d)	18 AAC 50.040(e)	18 AAC 50.050(f)	Fugitive Particulate Matter Emissions - Industrial Activities; Construction Projects; Handling, transporting or storing bulk materials	Y	Generally applicable requirement
162	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.080	18 AAC 50.040(e)	18 AAC 50.090	Ice Fog - Industrial process, Fuel-burning equipment, or incinerator in an area of potential ice fog	Y	Generally applicable requirement

Table 2. Permit No. 0023-AC010, Compliance, Monitoring, Recordkeeping and Reporting

Requirement #	Federal Citation	State Regulation Citation	State Incorporation by Reference of Federal Citation	SIP Regulation Citation in SIP (Old 18 AAC 50)	Description	Applicable	Comments/Source Numbers
164	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.110	18 AAC 50.040(e)	18 AAC 50.110	Air Pollution Prohibited - Any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property	Y	Generally applicable requirement
165	40 C.F.R. 52.70 - 40 C.F.R. 52.96	AS 46.14.120(a) and (b), AS 46.14.130, 18 AAC 50.300, 18 AAC 50.305, 6 AAC 50.050(e) [GC-13B], 18 AAC 50.325(c)	18 AAC 50.040(e)	18 AAC 50.300(a)	Classifications and requirement to get a permit - Facility	Y	Generally applicable requirement
166	40 C.F.R. 52.70 - 40 C.F.R. 52.96	18 AAC 50.045	18 AAC 50.040(e)	18 AAC 50.530	Circumvention/Prohibitions: Dilution air, Dispersion techniques - Any Activity (except a sulfur recovery unit less than or equal to 20 long tons per day rated capacity)	Y	This is a prohibition condition.
175	None	18 AAC 50.200	None	None	Information Requests	Y	Generally applicable requirement
177	None	18 AAC 50.205	None	None	Certification Requirements	Y	Generally applicable requirement
178	None	18 AAC 50.220(c) 18 AAC 50.320(a)(g)	None	None	Reference Test Methods - Test Plans, Operating Conditions, Excess Air Requirements and Particulate Matter Calculations	Y	Generally applicable requirement
179	None	18 AAC 50.240	None	None	Excess Emissions	Y	Generally applicable Requirement
180	None	18 AAC 50.335(a)	None	None	Permit Term and Renewal Requirements	Y	Generally applicable requirement
181	None	18 AAC 50.345(a)	None	None	Standard Conditions – Test Notification, Test Reports	Y	Generally applicable requirement
182	None	18 AAC 50.345(b)	None	None	Standard condition for a hazardous air contaminant major facility	Y	Generally applicable requirement for a HAP major facility

Table 2. Permit No. 0023-AC010, Compliance, Monitoring, Recordkeeping and Reporting

Requirement #	Federal Citation	State Regulation Citation	State Incorporation by Reference of Federal Citation	SIP Regulation Citation in SIP (Old 18 AAC 50)	Description	Applicable	Comments/Source Numbers
186	None	18 AAC 50.320(a)	None	None	Good Air Pollution Control Practice - Any requirement of AS 46.14 or 18 AAC 50 not otherwise specifically identified.	Y	Generally applicable requirement
191	None	18 AAC 50.320(a)	None	None	Compliance Certification - Permit must include provisions requiring periodic compliance certifications	Y	Generally applicable requirement
192	None	18 AAC 50.320(a)	None	None	Insignificant sources – required compliance, monitoring, recordkeeping and reporting	Y	Generally applicable requirement
193	None	18 AAC 50.410	None	None	Emission Fees - The facility's annual rate of emissions is demonstrated by an enforceable test method, a material balance calculation, an AP-42 emission factor, or other approved method. The permit sets out a payment schedule.	Y	Generally applicable requirement
194	None	18 AAC 50.320(a)	None	None	Reports and submittals must be submitted to Fairbanks	Y	Generally applicable requirement
195	None	18 AAC 50.320(a)	None	None	Recordkeeping Requirements	Y	Generally applicable requirement
196	None	18 AAC 50.320(a)	None	None	Operating Reports	Y	Generally applicable requirement

MEMORANDUM

State of Alaska
Department of Environmental Conservation
Division of Air & Water Quality
Air Permits Program

TO: KPL Petroleum File
DATE: June 20, 2000
FILE: KPL Petroleum, X000052
THRU: Jim Baumgartner, Supervisor
Construction Permits
Air Permits Program
TELEPHONE NO: 465-5100; FAX: 465-5129
FROM: Jeffrey Anderson, Environ. Eng. Assoc.
SUBJECT: Review of Modeling by
LORAX Environmental,
Inc. for KPL-firewater
pumping station

NOTE: This memorandum describes a modeling methodology for Tesoro Alaska Company for their Kenai Pipeline (KPL) facility, a marine vessel loading operation, Construction Permit Application for the firewater pumping station (modification) is acceptable and consistent with the US EPA's Guidelines on Air Quality Models (revised) (USEPA, 1996). The analysis applies to conditions existing at the time of the application with no warrant to the accuracy of information supplied by others. Any reliance on this report by a third party is at such party's sole risk.

As requested, I have reviewed the modeling analysis submitted on March 30, 2000, by LORAX Environmental, Inc. (LORAX), for KPL's Construction Permit application of the firewater pumping station at the Kenai Pipeline Facility. The analysis adequately shows the emissions associated with construction of the modification, within the constraints requested in this permit application, will not cause or contribute to a violation of the ambient air quality standards provided in 18 AAC 50.020(a) or the increments provided in 18 AAC 50.020(b). Through this memorandum I will summarize the key components of the modeling analysis, my findings, and the resulting concentrations.

The application for the Kenai Pipeline facility was prepared by LORAX Consulting Group. The source emission inventory and ambient dispersion modeling was also prepared by LORAX. However, since the consultant conducted the work on behalf of the applicant, I will only reference KPL Petroleum Corporation (KPL) throughout this memorandum, unless a specific discussion warrants otherwise.

Overview

The KPL facility is located in an industrial area of the Kenai Peninsula Borough, approximately 100 kilometers Southwest of Anchorage on the eastern side of Cook Inlet. The area around the facility is designated as Class II with respect to Federal PSD regulations and air quality. The closest Class I area is Tuxedni National Wildlife Region,

located about 94 kilometers to the southwest. The topography in the vicinity of the project area is fairly flat. Elevations rises rapidly to the northeast from sea level to approximately 30 meters above mean sea level. Figure 3 of the application (attached) is a detailed area topography map of the facility. This figure shows the absence of any significant terrain features in the immediate project area.

KPL modeled their impact on ambient air quality standards and increments for Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), and Particulate Matter with an aerodynamic diameter of 10 microns or less (PM-10). KPL used the ISCST3 model, version 99155, for this modeling analysis to demonstrate compliance with the standards and increments. KPL applied this model to the existing fire pump station location designated in Figure 2 (attached) of the application. At the time of submittal this was the most current version of the ISCST3 model. The modeling analysis provided with their permit application is consistent EPA model guidelines.

LORAX reviewed the Department permit files and identified all permitted sources within a 50-kilometer radius of the KPL facility. A list of these sources is provided in Table 6 of the application. A complete emission inventory for these sources was prepared for the Tesoro refinery PSD permit application in January of 1998. This was the most current emission inventory and was approved by the Department for use by KPL in their ambient air impact analysis.

The Industrial Source Complex Short Term (ISCST3) model (Version 96113) requires hourly meteorological data representative of the area being modeled. To complete the modeling assessment for the various ambient air standard averaging periods, one to five years of hourly meteorological data is used. KPL used meteorological data collected from August 1, 1990 through July 31, 1991, at the UTAMP Site 2 monitoring station located about 2 km to the northeast of the firewater pumping engines site. The modeling analysis included upper-air data gathered at Anchorage, Alaska (NWS Station 26409).

The Department accepted the use of this meteorological data set with the 1998 Tesoro PSD application (LORAX, 1998). The Department is not aware of any significant changes in terrain or new structures or buildings at the UTAMP Site 2 meteorological site to alter the wind patterns from this data set. In determining a representative meteorological data set for KPL, the Department also considered that the KPL source will be permitted to operate under severe time limitations (400 hours per year total) and the potential emissions from these pumping engines are relatively small compared to other facility sources in the area. Therefore, under case-by-case approval guidance found in the EPA Guidelines for Air Quality Modeling, the Department believes the meteorological data are valid and representative of the meteorological conditions at the KPL site.

KPL has chosen to not use the Ambient Ratio Method (ARM) to refine their NO₂ estimates. This method was approved for use by EPA in Supplement C to the Guideline on Air Quality Models (August 1995). Based on the ARM default value of 0.75, the nitrogen dioxide concentrations are assumed to be 75% of the nitrogen oxide

concentrations determined from the ambient air quality model. All of the sources analyzed in the air modeling impact assessment have been characterized as point sources.

KPL assumed their sources are burning fuel containing no greater than (**0.35%**) by wt. Sulfur, which is consistent with the permit application (Table 3). KPL appropriately assumed that all equipment was operating simultaneously at full-load for the short-term compliance demonstration. The annual modeled impacts were based on the operational limits in the application. These limits are **400** hours of operation for the firewater pumping station (200 hours each pump engine). These values were transcribed into emissions per unit of time appropriate to the Standard or Increment.

For stacks whose height is less than Good Engineering Practice stack height, it is necessary to consider the effect of building wake or downwash. Detailed downwash procedures for both the cavity and wake regions are followed. The ISCST3 model conducts such an analysis and has been provided with direction-specific estimates of building height and width from the EPA Building Parameter Input Program (BPIP).

Findings

The air quality analysis was conducted in two phases: an initial coarse grid receptor phase and a more refined grid receptor phase. The coarse grid was of polar design with receptors spaced at 5-degree intervals on 5 concentric rings at radial distances of 1,200, 1,600, 2,000, 2,400, and 2,800 meters from the center of the KPL facility. In addition to these receptors, a series of discrete receptors were placed along the facility fence-line at 25-meter spacing, at 50-meter intervals out to a distance of 900 meters from the center of the facility and at the Tuxedni National Wildlife Refuge Class I boundary.

To complete a modeling analysis of the potential impacts from a proposed project, a background value for each regulated pollutant needs to be determined. For some sources this is determined by actual on-site monitoring and for others, this is developed from a representative data set at another nearby location. The monitoring data collected at the UTAMP sites were determined to be representative. However, as this data includes impacts from sources in the immediate area, it was classified into three groups to account for the Tesoro, Unocal, Phillips, and general Background sources. If the KPL project had qualified as a PSD-significant modification with impacts exceeding the cause or contribute values listed in 18 AAC 50.310(d)(2), Table 6, then modeling guidance would have required a monitoring station in area(s) of maximum expected impact from the KPL sources. For KPL, the UTAMP data (1995-96) has been assessed to determine an appropriate background concentration for the regulated pollutants of NO₂, SO₂, CO, and PM-10.

KPL has sought to remove data that would include monitored impacts from sources at the refinery as well as from the nearby Unocal and Phillips facilities. To address this situation, the data were analyzed to determine the concentrations that occurred when the wind was blowing from any direction such that it would not include impacts from these sources. A representative background pollutant concentration(s) developed by this protocol (sources/wind direction/monitored concentrations) resulted in the following:

Representative Values	Maximum from UTAMP/Tesoro
NO ₂ at 5.3 ug/m ³ , annual averaged;	12.7 µg/m ³
SO ₂ at 1.1 ug/m ³ , annual averaged;	1.1 µg/m ³
SO ₂ at 25.6 ug/m ³ , 24-hour average;	25.6 µg/m ³
SO ₂ at 77.2 ug/m ³ , 3-hour average;	117.8 µg/m ³
CO at 893 ug/m ³ , 8-hour average;	893.0 µg/m ³
PM-10 at 8.3 ug/m ³ , annual average and	8.3 µg/m ³
PM-10 at 41 ug/m ³ , 24-hour average.	41.0 µg/m ³

The acceptance of this data adjustment procedure is reserved on a case-by-case basis and should not be assumed to be applicable to all future parties in the Kenai area. The ability to determine the relative importance of various sources in contributing to ambient concentrations is based on different assumptions and data. Permit Applicants that rely on different measurements or the use of different estimation parameters will likely yield different results. The differences may appear to be negligible, but occasionally the differences may be large enough to require that they be reconciled with the Department or EPA.

Results

KPL's ambient analysis indicated no areas where there could be potential significant contributions to the annual National Ambient Air Quality Standard (NAAQS). This KPL modification will be of non-PSD size and have severe operational time limits. These case-specific factors allowed Staff to accept the UTAMP Site 2 meteorological data as representative of the KPL project area. Therefore, the use of high-second-high values for the short-term standards and increments was appropriate for this modeling analysis. I re-checked the ISCST3 model files using the LORAX source files submitted with this application. My review found that in the modeled assumed worst cases, there was no significant difference between the two model analyses. Any predicted concentration differences were minor (less than 1 unit) and did not lead to additional potential problem areas. I also conducted a re-run of the short-term SO₂ or PM-10 ambient air standard files. Again the differences were insignificant. Therefore, I believe the impact to the regulated pollutants to be reasonable. Additionally, these receptor locations are not in a high public contact zone as they are very near the closely monitored and controlled boundary of the project.

Table 2 lists the State's ambient air quality standards for NO₂, SO₂, CO, and PM-10. Table 2 also lists the maximum modeled concentrations (including background) from all nearby sources in the KPL project significant impact zone. Since ambient concentrations vary with distance from each source, the maximum values shown represent the highest value that occurs at a point within the modeled receptor airshed. They do *not* represent the highest concentration that would occur at *all* locations in the area, as there is no corresponding background value for each receptor site. However, they do represent results that are believed to be significantly stringent for the proposed emission limits at

the refinery. As previously stated, the Department re-ran several of the modeling cases and these results were nearly identical to the values listed in Table 10 and Table 11 of the application. These are the design values or design concentrations that are the sum of the concentration contributed by the source (KPL or others) and the background concentration.

Table 2--Air Quality Standard Analysis

Pollutant/Avg . Time	Ambient Standard ($\mu\text{g}/\text{m}^3$)	Significant Impact Level ($\mu\text{g}/\text{m}^3$)	Max conc from KPL, All ($\mu\text{g}/\text{m}^3$)	Bkgd conc ($\mu\text{g}/\text{m}^3$)	Total Ambient Impact ($\mu\text{g}/\text{m}^3$)
PM-10:					
annual	50	1.0	^a 0.2 ^b 13.4	8.3 5.3	^a 8.5 ^b 21.7
24-hr max	150	5	^a 23.6 ^b 103.5	41.0 41.0	^a 64.6 ^b 144.5
CO:8-hour	10,000	na	^a 94.4 ^b 1,390.0	893	^a 987 ^b 2,283
CO:1-hour	40,000	na	^a 371 ^b 5,000.3	1408	^a 1,779 ^b 6,408
SO ₂ :					
annual	80	1.0	^a 0.1 ^b 7.9	1.1 1.1	^a 1.2 ^b 9.0
24-hr max	365	5	^a 38.9 ^b 179.9	25.6 25.6	^a 84.5 ^b 205.5
3-hr max	1300	25	^a 120.0 ^b 534.7	77.2 77.2	^a 197.1 ^b 611.8
NO ₂ : annual	100	1.0	^a 3.2 ^b 71.8	5.3 5.3	^a 8.5 ^b 77.1

Note 1: KPL contribution based on 0.35% S fuel; 400 hours per year for the two engines.

Note 2: The first value with a superscript (a) is for KPL sources only and the second modeled value with a superscript (b), is for All sources

Note 3: Background values are from the UTAMP monitoring data set.

As shown in Table 2, the modeling results present modeled maximum values that do not threaten any of the regulated pollutants listed in Table 2. The annual NO₂ concentration of about 3.2 $\mu\text{g}/\text{m}^3$ is located at the receptor just south of the KPL property. When the background NO₂ is added to this modeled value, the result is **8.5 $\mu\text{g}/\text{m}^3$** , or about eight percent (8%) of the NAAQS. Including other nearby sources in this ambient impact analysis results in a predicted concentration of 71.8 $\mu\text{g}/\text{m}^3$, and with background the total concentration is estimated to be **77.1 $\mu\text{g}/\text{m}^3$** , or about seventy-seven percent (77%) of the NAAQS.

The modeled short-term concentrations reflect the “high, second-high” value, and these predicted concentrations reflect a project total impact of about twenty-two to thirty percent (22 to 30%) of the standard, which is consistent with criteria for this project. The high, second-high 24-hour SO₂ value of **64.5 ug/m³**, including background, occurs along the western KPL fence-line. This does not exceed the 24-hour average standard of 365 ug/m³. The modeled value for the second-high three- (3) hour average SO₂ value of **197.0 ug/m³**, including background, is also predicted to occur along the western controlled project line. This is significantly less than the three-hour average standard of 1300 ug/m³.

The maximum annual average PM value was predicted to be about **9.0 ug/m³**, including background, at a location on the southwest boundary of the project. The modeled impact to the annual PM standard is less than 1.0 ug/m³ and would be classified as insignificant. The short-term maximum 24-hour average PM value of **56.2 ug/m³**, including background, is located along the southern line. Modeled concentrations for the regulated pollutant Carbon monoxide (CO) are also presented in this table, and they too reflect values significantly less than the standards. **Restated, the modeled ambient values from the KPL firewater pump project as limited in the permit, would not cause or contribute to potential violations of the annual NO₂, annual PM, 24-hour SO₂, 24-hour PM, the 3-hour SO₂ ambient air standard, nor the 8-hour or 1-hour CO ambient air standard.**

Table 3 shows the State’s Class II increment standards and the maximum modeled increment concentrations for SO₂. As shown, there appears to be a significant contribution of about seventy-six percent (76%) to the 24-hour increment. However, KPL and the Department have noted that emissions from the proposed activities have been conservatively maximized in the source inventory. Review of the emission inventory file(s) confirms this assumption, as well as the basic fact KPL is to be permitted to operate for a very limited time (400 hours per year) for these sources. This should make the modeled impacts a conservative estimate.

The increase in increment-consuming pollutants is less than one ton per year for this restricted source. The KPL application is for a modification to an existing PSD facility and is required under Section 18 AAC 50.310(n)(2) to complete an increment analysis for this proposed increase in emissions. To address this requirement the Department assumed that the new emissions would contribute to the same maximum receptor sites for the last PSD permit application for the Tesoro Refinery. This assumption is conservative as the sources from these two separate areas at the Tesoro Refinery facility will not likely contribute to the same receptor at the same time. The results of this assessment are presented in Table 3 below. With the exception of a potential short-term 24 hour SO₂ increment case, all predicted increment impacts are significantly less than the Class II increment values. The short-term SO₂ value is about eighty-four percent (84%) of the increment. The proposed annual increase in SO₂ emissions from this new source is about 0.2 tons per year. The Department does not believe meteorological conditions nor facility operational conditions will permit the simultaneous and cumulative impact as presented in this conservative modeling analysis to occur. Therefore, the Department

finds that the most likely scenario will be less than the maximum modeled ambient air increment concentration as predicted from both KPL the Tesoro PSD sources.

Additionally, I added receptors in the vicinity of the maximum KPL modeled receptor locations. The intent was to determine if another maximum receptor site would be modeled for a more refined grid spacing. My analysis did not change the maximum value by more than about one-half a microgram per cubic meter. The maximum predicted receptor location remained nearly the same for both modeling files. In summary, **KPL, as defined in this permit, does *not* cause or contribute to any potential violations of the Class I or Class II increment standard(s).**

Due to the great distance to a Class I area, Tuxedni, additional modeling is generally not conducted at this selected receptor. Modeling guidance recommends that modeling of sources and receptor locations be limited to a maximum distance of about fifty kilometers (50 km). The nearest Class I site for the KPL project is significantly greater than 50 km and is just under 100 km. However, to address potential concerns, KPL modeled ambient concentrations at a limited receptor grid placed at the boundary of the Class I area. The results of this analysis are presented in Table 11 of the application. This selected modeling analysis determined the maximum modeled values for the regulated pollutants at this Class I boundary were all of an insignificant level. In all cases they were found to be less than 1.0 $\mu\text{g}/\text{m}^3$.

Table 3--PSD Increment Analysis

Pollutant/Avg Time	Class II Increment ($\mu\text{g}/\text{m}^3$)	Maximum increment consumed from KPL and ALL sources ^{2,3} ($\mu\text{g}/\text{m}^3$)
PM-10:		
annual	17	^a 0.2 ^b 0.0
24-hr max	30	^a 23.0 ^b 0.0
SO ₂ :		
annual	20	^a 0.1 ^b 6.0
24-hr max	91	^a 30.6 ^b 77.1
3-hr max	512	^a 120.0 ^b 199.0
NO ₂ : annual	25	^a 3.2 ^b 0.0

Note 1: As described in the text of this memorandum, KPL does not cause or contribute to any potential violations of the Class II increments. Additionally, there is presently no increment for CO.

Note 2: The superscript notation of (a) is for the KPL firewater engines only, and the notation (b) is for the Tesoro 1998 PSD sources.

Conclusions

I have found that the emissions associated with operating the KPL facility within the requested operating limits will *not* cause or contribute to a violation of the ambient air quality standards provided in 18 AAC 50.020(a) or the increments provided in 18 AAC 50.020(b). I believe that KPL's modeling analysis fully complies with the showing requirements of 18 AAC 50.300. This decision is based on the specifics to this project's application and should not be viewed as granting approval for application of data, methods, meteorological variations, or other source parameters to another facility seeking a construction permit under Department regulations. Decisions can only be made on a case-by-case basis.

JA/pal (g:\awq\awq-permits\airfacs\tesoro kenai pipeline\construct\84\pre\kplmodelmemo-2000.doc)
Attachments